

NSCAS - Math Table of Specifications

External/Paper

Grade 7

48 items

MA 7.1	NUMBER: Students will communicate number sense concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Number 15% - 25%			
MA 7.1.1	Numeric Relationships: Students will demonstrate, represent, and show relationships among rational numbers within the base-ten number system.	<i>No additional indicator(s) at this level.</i>			
MA 7.1.2	Operations: Students will compute with rational numbers accurately.	DOK 1	DOK 2	DOK 3	7 - 12 items
MA 7.1.2.a	Solve problems using proportions and ratios (e.g., cross products, percents, tables, equations, and graphs).	x	x		
MA 7.1.2.b	Add, subtract, multiply, and divide rational numbers (e.g., positive and negative fractions, decimals, and integers).	x	x		
MA 7.1.2.c	Apply properties of operations as strategies for problem solving with rational numbers.	Assessed at the local level			
MA 7.1.2.d	Use multiple strategies to add, subtract, multiply, and divide integers.	x	x		
MA 7.1.2.e	Estimate and check reasonableness of answers using appropriate strategies and tools.		x		

MA 7.2	ALGEBRA: Students will communicate algebraic concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Algebra 30% - 40%			
MA 7.2.1	Algebraic Relationships: Students will demonstrate, represent, and show relationships with expressions, equations, and inequalities.	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 7.2.1.a	Describe and create an inequality from words and pictures (e.g., one-step, one-variable).	x	x		
MA 7.2.1.b	Represent real-world situations with proportions.		x		
MA 7.2.2	Algebraic Processes: Students will apply the operational properties when evaluating expressions, and solving equations and inequalities.	DOK 1	DOK 2	DOK 3	5 - 8 items
MA 7.2.2.a	Solve equations using the distributive property and combining like terms.	x			
MA 7.2.2.b	Use factoring and properties of operations to create equivalent algebraic expressions (e.g., $2x + 6 = 2(x + 3)$).	x			
MA 7.2.2.c	Given the value of the variable(s), evaluate algebraic expressions (including absolute value).	x	x		
MA 7.2.2.d	Solve two-step equations involving rational numbers which include the integers.	x			
MA 7.2.2.e	Solve one-step inequalities involving integers and rational numbers and represent solutions on a number line.	x	x		
MA 7.2.3	Applications: Students will solve real-world problems involving expressions, equations, and inequalities.	DOK 1	DOK 2	DOK 3	6 - 9 items
MA 7.2.3.a	Describe and write linear equations from words and tables.	x			
MA 7.2.3.b	Write a two-step equation to represent real-world problems involving rational numbers in any form.		x		
MA 7.2.3.c	Solve real-world problems with equations that involve rational numbers in any form.		x		
MA 7.2.3.d	Solve real-world problems with inequalities.		x		
MA 7.2.3.e	Use proportional relationships to solve real-world problems, including percent problems, (e.g., % increase, % decrease, mark-up, tip, simple interest).		x		
MA 7.2.3.f	Solve real-world problems involving scale drawings using a proportional relationship.		x		

MA 7.3	GEOMETRY: Students will communicate geometric concepts and measurement concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	<p style="text-align: center;">Geometry 15% - 25%</p>			
MA 7.3.1	Characteristics: Students will identify and describe geometric characteristics of two- dimensional shapes.	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 7.3.1.a	Apply and use properties of adjacent, complementary, supplementary, and vertical angles to find missing angle measures.		x		
MA 7.3.1.b	Draw triangles (freehand using a ruler and a protractor, and using technology) with given conditions of three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.	Assessed at the local level			
MA 7.3.2	Coordinate Geometry: Students will determine location, orientation, and relationships on the coordinate plane.	<i>No additional indicator(s) at this level.</i>			
MA 7.3.3	Measurement: Students will perform and compare measurements and apply formulas.	DOK 1	DOK 2	DOK 3	5 - 9 items
MA 7.3.3.a	Solve real-world problems involving perimeter and area of composite shapes made from triangles, quadrilaterals and polygons.		x		
MA 7.3.3.b	Solve real-world problems involving surface area and volume of composite shapes made from rectangular and triangular prisms.		x		
MA 7.3.3.c	Determine the area and circumference of circles both on and off the coordinate plane.	x	x		

MA 7.4	DATA: Students will communicate data analysis/probability concepts using multiple representations to reason, solve problems, and make connections within mathematics and across disciplines.	Data 20% - 30%			
MA 7.4.1	Representations: Students will create displays that represent data.	DOK 1	DOK 2	DOK 3	NA
MA 7.4.1.a	Represent data using circle graphs.	Assessed at the local level			
MA 7.4.2	Analysis & Applications: Students will analyze data to address the situation.	DOK 1	DOK 2	DOK 3	1 - 4 items
MA 7.4.2.a	Solve problems using information presented in circle graphs.		x		
MA 7.4.2.b	Explain the difference between a population and a sample.	Assessed at the local level			
MA 7.4.2.c	Generate conclusions about a population based upon a random sample.	Assessed at the local level			
MA 7.4.2.d	Determine and critique biases in different data representations.	Assessed at the local level			
MA 7.4.3	Probability: Students will interpret and apply concepts of probability.	DOK 1	DOK 2	DOK 3	7 - 11 items
MA 7.4.3.a	Generate a list of possible outcomes for a simple event.	Assessed at the local level			
MA 7.4.3.b	Describe the theoretical probability of an event using a fraction, percentage, and decimal.		x	x	
MA 7.4.3.c	Find theoretical probabilities for independent events.		x	x	
MA 7.4.3.d	Perform simple experiments and express the degree of likelihood (possible, impossible, certain, more likely, equally likely, or less likely); write as fractions and percentages.	Assessed at the local level			
MA 7.4.3.e	Find experimental probability for independent events.	x	x		
MA 7.4.3.f	Compare and contrast theoretical and experimental probabilities.	x	x	x	
MA 7.4.3.g	Find the probability of dependent compound events.		x	x	
MA 7.4.3.h	Identify complementary events and calculate their probabilities.	x	x		